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Journal of the Society of Arts.

FRIDAY, MAY 1, 1868.

Announcements by the Council.

ORDINARY MEETINGS.

Wednesday evenings, at Eight o'Clock :—

MAY 6.—“On a New Form of Ventilating Stove.”
By Captain DOUGLAS GALTON, F.R.S. On this evening EDWIN CHADWICK, Esq., C.B., will preside.

MAY 13.—“On the various Methods of Lighting Streets by Gas, with Proposals for the introduction of an Improved System.” By S. TUCKER, Esq.

MAY 20.—“On the Condition of the Agricultural Labourer.” By J. BAILEY DENTON, Esq.

CONVERSAZIONE.

The Council have arranged for a conversazione, at the South Kensington Museum, on Wednesday, the 3rd June, cards for which will shortly be issued.

PRIZES FOR ART-WORKMEN.*

The Council of the Society of Arts hereby offer Prizes for Art-Workmanship, according to the following conditions :—

I. The works to be executed will be the property of the producers, but will be retained for exhibition, in London and elsewhere, for such length of time as the Council may think desirable.

II. The exhibitors are required to state in each case the price at which their works may be sold, or, if sold previously to exhibition, at what price they would be willing to produce a copy.

III. The awards in each class will be made, and the sums specified in each class will be paid, provided the works be considered of sufficient merit to deserve the payment; and, further, in cases of extraordinary merit, additional awards will be given, accompanied with the medal of the Society.

IV. Before the award of prizes is confirmed the candidates must be prepared, if called upon, to execute some piece of work sufficient to satisfy the Council of their competency.

V. *Bonâ-fide* Art-workmen only can receive prizes; and medals may be substituted for money prizes of equivalent value at the option of any successful competitor.

VI. Although great care will be taken of articles sent for exhibition, the Council will not be responsible for any accident or damage of any kind occurring at any time.

VII. Prices may be attached to articles exhibited and sales made, and no charge will be made in respect of any such sales.

VIII. All the prizes are open to male and female competitors on equal terms; and, in addition, *special* prizes, on the same scale as to amounts, will be awarded,

at the discretion of the judges, among female competitors; although the specimens exhibited by females may not be as good as those exhibited by males, not deemed worthy of reward.

IX. Any producer will be at liberty to exhibit, either in his own name or through his workmen, any work or works as specimens of good workmanship, in the various classes, provided that the work or works be accompanied with a statement of the name or names of the artisans who executed their respective portions; and if the work or works be sufficiently meritorious, extra prizes will be given to the artisans who have executed them.

X. Artisans may, if they think fit, exhibit works executed by them of a similar character to the prescribed subjects, although not exactly correspondent therewith. If the works be sufficiently meritorious extra prizes will be awarded.

XI. All articles for competition must be sent in to the Society's house on or before Saturday, the 19th of December, 1868, and must be delivered free of all charges. Each work sent in competition for a prize must be marked with the Art-workman's name, or, if preferred, with a cypher, accompanied by a sealed envelope giving the name and address of the Art-workman. With the articles a description for insertion in the catalogue should be sent. The works will be exhibited at the Society's House, and afterwards at the South Kensington Museum.

XII. Two or more Art-workmen may concur in the production of any article sent in for competition; but in that case the names of, and respective parts taken by, each must be specified when the article is sent in, together with a statement of the proportions in which they may have agreed, if successful, to divide any prize which may be awarded.

. The Council are happy to announce that many of the works which received first prizes in the competitions of 1863, 1864, 1865, 1866, 1867, and 1868 have been purchased by the Department of Science and Art, to be exhibited in the South Kensington Museum and the Art Schools in the United Kingdom.

The Council of the Society of Arts, in framing the above conditions and preparing the subjoined detailed list of subjects for competition, have had under consideration the recommendations of the Society's judges, as set forth in their last report, together with the opinion expressed by the Art-workmen assembled on the recent occasion of the announcement of awards made in connection with the last competition.

The principles upon which their programmes for the last six years have been based, namely, using the competition as a means of testing the power of the Art-workman of the present day to re-produce choice models of ancient art-industries, are believed to have worked most successfully; and the Council are of opinion that, however fitting it may be at the present time to remodel their programme, it will be well to return, from year to year, or from time to time, to the programme which has proved so useful in the past. Instead of making partial changes in that programme, they have deemed it best to offer one of entire novelty, having for its special objects—Firstly, To encourage the revival of the practice of dormant or rarely used processes of handicraft, by which the field of Art-industry may be extended, and Art-workmen thereby be, in course of time, more adequately remunerated as a class; and, secondly, to exercise the artisan in the practical application, in accordance with recognised principles of good taste, of the art-processes so to be revived, to objects of ordinary use, hitherto for the most part undecorated.

In considering the apportionment of the money prizes to the respective subjects, attention has been paid to the probable expense to which any Art-workman must be put in each case who may enter upon the competition.

It will be observed that in the First Division, “Specimens of Art-workmanship in prescribed processes,” the

* The Worshipful Company of Salters contribute ten guineas annually to this prize fund. The North London Exhibition prize consists of the interest of £167 7s. 3d., invested in the name of the Society of Arts, to be awarded by the Council “for the best specimens of skilled workmanship” at the Society's Exhibition of the works sent in for the prizes named above.

money prizes are in all cases of smaller amount than in the Second Division, "Specimens of the application to ordinary industry of prescribed Art-processes."

The reason for this difference consists in the fact that the Council look for minor specimens in the one case, involving the workman in little expense beyond the risk of the loss of his own time; against which he should set the value of the improvement he may derive from making the effort under any circumstances; while in the other they expect to see a finished article of a more elaborate nature fit for immediate use by any purchaser.

Art-workmen are earnestly recommended to pay due regard to simplicity and harmony, as well as richness and elaboration, in all their productions, since the judges will estimate no less highly purity of line and good balance of colour or of plain and enriched surfaces, than they will any merits of mechanical execution.

The taste exercised in the selection of objects for ornamentation will be considered in the adjudication of the prizes.

FIRST DIVISION.—SPECIMENS OF ART-WORKMANSHIP IN PRESCRIBED PROCESSES.

For the best specimen of:—

A.—Enamelling on sheet metal, in various colours, combined with gilding fluxed over.—One prize, £7 10s., for the best, and one of £5 for the second best.

B.—Enamelling on metal, the enamel filling incised lines and surfaces; both opaque and translucent enamels to be introduced on the same plaque.—One prize, £7 10s., for the best, and one of £5 for the second best.

C.—Enamelling on a metal base, the compartments for the enamels being formed by filigree, after the manner of Chinese, Japanese, or Byzantine enamel work.—One prize, £7 10s., for the best, and one of £5 for the second best.

D.—Painting with enamel colours and fired on earthenware slabs.—One prize, £7 10s., for the best, and one of £5 for the second best.

E.—Ditto, on curved or moulded surfaces of earthenware.—One prize, £10, for the best, and one of £5 for the second best.

F.—Ditto in transparent and opaque colours, combined with gilding, fluxed on clear glass.—One prize, £7 10s., for the best, and one of £5 for the second best.

G.—The execution of "filigrani" in glass, after the Venetian fashion.—One prize, £7 10s., for the best, and one of £5 for the second best.

H.—Painting and lacquering on wood or papier maché, after Persian and Indian methods.—One prize, £7 10s., for the best, and one of £5 for the second best.

I.—Damascening in gold, silver, and copper, on steel or iron.—One prize, £7 10s., for the best, and one of £5 for the second best.

J.—Ditto on silver in combination with niello. (The study of Japanese specimens is recommended.)—One prize, £10, for the best, and one of £5 for the second best.

K.—Ditto on brass or white metal.—One prize, £10, for the best, and one of £5 for the second best.

L.—Combination of marquetry with carving in low relief. (The study of M. Fournier's cabinet at South Kensington is recommended.)—One prize, £10, for the best, and one of £5 for the second best.

M.—The combination of gilding or gilt-metal work, with incised ivory or hard wood.—One prize, £7 10s., for the best, and one of £5 for the second best.

N.—Inlay of hard woods, ivory or tortoise-shell; in softer woods or other substances in the solid.—One prize, £7 10s., for the best, and one of £5 for the second best.

O.—Combination of mosaic with carved marble.—One prize, £10, for the best, and one of £5 for the second best.

P.—Ditto and inlay with carved stone.—One prize, £7 10s., for the best, and one of £5 for the second best.

Q.—Carving, involving the combination of not less than three different woods.—One prize, £7 10s., for the best, and one of £5 for the second best.

SECOND DIVISION.—SPECIMENS OF THE APPLICATION TO ORDINARY INDUSTRY OF PRESCRIBED ART PROCESSES.

For the best specimens of:—

A.—The most beautiful dial-face for a clock, not less than nine inches in diameter, in any metal or metals, the principal decoration being by painted enamel on the surface.—One prize of £15 for the best, and one of £10 for the second best.

B.—The most beautiful frame for a miniature; not less than five inches by three inches, in any metal or metals, the principal decorations being produced by enamelling on incised lines and surfaces (as per Process B., First Division).—One prize of £10 for the best, and one of £5 for the second best.

C.—The most beautiful small metal ring-tray for a lady's dressing-table, decorated with filigree enamel (Process C., First Division).—One prize of £10 for the best, and one of £5 for the second best.

D.—The most beautiful earthenware slab, not less than one foot by six inches, painted in enamel colours and fired, for insertion in the frieze of a stone or marble chimney-piece.—One prize of £15 for the best, and one of £10 for the second best.

E.—The most beautiful tablet in moulded or modelled earthenware, painted with enamel colours and fired, for monumental or commemorative purposes, or say for bearing the name of a street, or indicating sections of a museum.—One prize of £15 for the best, and one of £7 10s. for the second best.

F.—The most beautiful drinking-vessel of clear glass, decorated in colour, &c. (as per process F., First Division).—One prize of £7 10s. for the best, and one of £5 for the second best.

G.—A champagne glass, with filigrani in the cup, and stem, and foot.—One prize of £7 10s., for the best, and one of £5 for the second best. N.B.—Filigrani may be white or any colour.

H.—A pair of boards for book-covers, suitable for an octavo volume. Decorated within and without according to Process H., First Division.—One prize of £10 for the best, and one of £7 10s. for the second best.

I.—A set of fire-irons, enriched with damascening (as per Process I., First Division).—One prize of £15 for the best, and one of £7 10s. for the second best.

J.—A silver drinking-cup, to hold not less than half a pint, decorated with damascening and niello (as per Process J., First Division).—One prize of £15 for the best, and one of £7 10s. for the second best.

K.—A musical instrument, say trumpet, cornet, or saxe-horn, decorated with damascening (as per Process K., First Division).—One prize of £15 for the best, and one of £10 for the second best. N.B.—It is indispensable that no process shall be used which shall diminish the tone or sonority of the instrument.

L.—An envelope-case, enriched with carving in low relief and marquetry.—One prize of £15, and one of £7 10s. for the second best.

M.—The most beautiful flute, decorated with gilding, carving, gilt metal work, or incised ornament.—One prize of £15, for the best, and one of £7 10s. for the second best.

N.—A small musical instrument (as a violin or guitar), or any conspicuous or principal part of a large instrument (as a set of pianoforte or organ keys), decorated with inlay of hard woods, ivory, or tortoise-shell.—One prize of £20 for the best, and one of £10 for the second best. N.B.—It is indispensable that no process shall be used which shall diminish the tone or sonority of the instrument.

O.—A pedestal for a bust (less than life-size), forming a clock-case, with an aperture for the dial not less than six inches diameter, consisting of carved marble combined with mosaic.—One prize of £20 for the best, and one of £15 for the second best.

P.—A chimney-piece, suitable for a lady's boudoir; opening, three feet wide by three feet three inches high, in carved stone, enriched with mosaic and inlay.—One prize of £15 for the best, and one of £10 for the second best.

Q.—An occasional table, with a round top, say two feet six inches diameter, decorated with carving, involving the combination of not less than three different woods.—One prize of £15 for the best, and one of £10 for the second best.

R.—Ornamental ironwork for the balcony of a window, 3 feet 6 inches wide, height of balcony 1 foot, the work to be wrought; the specimen may be oiled but not painted.—One prize of £10 for the best, and one of £5 for the second best. N.B.—Extreme elegance is desired in this specimen rather than over-much work.

SUBSCRIPTIONS.

The Lady-day subscriptions are due, and should be forwarded by cheque or Post-office order, crossed "Coutts and Co.," and made payable to Mr. Samuel Thomas Davenport, Financial Officer.

Proceedings of the Society.

FOOD COMMITTEE.

The Committee met on Saturday, March 28. Present—Harry Chester, Esq. (in the chair), Captain Grant, Messrs. W. H. Michael, P. McLagan, M.P., C. S. Read, M.P.

Mr. CHAMPNEY—I farm about 510 acres of my own land, near Horley-station, on the Brighton line, on which I keep about 100 cows, more or less. I was led to embark in the enterprise of supplying the milk direct to the customer, because I found the price I obtained from the trade did not pay me; and when I asked a higher price they declined to give it. I then said I would go into the trade in London myself, and sell the finest milk at the lowest price; naturally expecting that I should get an immense amount of custom, but I believe I have had more to contend with in selling genuine milk than dairy-men have in disposing of that which is adulterated to the extent of 75 per cent. The prejudices of the public, and the infatuation which they have for their dairy-men, are incredible. I believe that three-fourths of my custom now is for extra milk, which people take in consequence of its being so good, still continuing to take their regular supply from their own dairy-men. I have been made out all that is bad. Some have said they knew me in the Borough, a regular swindler; others that I had just come out from prison. They say also, quite coolly, that it is impossible for me to continue selling genuine milk at the price; and if I get any good customers who take two or three quarts a day, the dairy-men will sell to them, at cost price, to upset my business. I have now seven shops opened; all in or near St. Giles's parish. I have no grand front, or anything of that kind—simply a place of sale. I have found, on opening a new shop, that a number of the people who have been dealing at the next nearest will flock to it and say they are so glad a new shop is opened, for the milk was got to be half water at the other one, and yet it is all the same milk; and I sometimes waste £1 or £2 worth in a day rather than not sell the best. The milk is tested four or five times a day; no cream is taken off; nor do I make any butter. The price is 4d. per quart, and 3d. to customers taking a quart. The dairy-men have no certain price; if they think I am hurting their trade they will come

down to 3d. or 3½d., or give double measure. The shops are all in poor neighbourhoods, but some people send two miles for it. Two or three send from the Marble Arch, and one from King's-cross; and clerks going home call for it in bottles. There is no chance of adulteration after leaving the shop, because it is in the purchaser's custody.

The CHAIRMAN—Have you thought at all of the feasibility of doing without shops at all, and sending the milk direct from the farm to customers' houses, to those who would take three or four quarts a day regularly.

Mr. CHAMPNEY—A gentleman mentioned it to me as being done in Holland that way, but it could not be done here on account of the railway carriage. At present they charge so much a gallon, but in such case they would charge for each can as a parcel. A gentleman who has a farm near me lives in London, and he sends his own milk up every night, but I reckon it costs him 9½d. or 10d. a quart, without reckoning anything for fetching it from the railway station. Milk, in my neighbourhood, is worth 1s. 3d. per barn gallon of 17 pints. Genuine milk can never be sent round under 6d. per quart, take the year round, to let the farmer and retail man live. My own opinion is that average milk is adulterated to the extent of 20 per cent. throughout London.

The CHAIRMAN—We have had evidence here to the effect that the milk supplied to what may be called gentlemen's houses is very little adulterated, but that what is supplied to the poor is to a considerable extent. I have tested the milk supplied to me by the lactometer and found it perfectly pure.

Mr. CHAMPNEY—I believe most of the milk sold is adulterated at least 20 per cent. The lactometer will show you if water is put in, but not if the cream is taken off. I do not mean that 20 per cent. of water is always added; I mean the milk is reduced 20 per cent. in quality by water and cream taken off.

The CHAIRMAN—I have tried it in this way. I have found the the milk pure by the lactometer, and then on adulterating it with water I have found the lactometer show it exactly.

Mr. CHAMPNEY—Any milkman in London will show his milk to be pure by the lactometer, because the standard is twenty-eight, but good, genuine milk will average thirty-four. You cannot test it properly without analysing it. You may have genuine milk at twenty-eight if the cows are forced.

Mr. MICHAEL—You say that in your opinion there are twenty parts of water in one hundred of the best milk supplied in London. What do you say as to the supply in the poorest localities?

Mr. CHAMPNEY—The question is whether some of them can get milk at all. People have told me they have gone early in the morning to a milk shop, and have seen a man bring a kettle full of boiling water from the parlour, put it into something at the back of the counter, and then take a scoop of something, stir it all up, and serve it into the cups in farthingsworts or ha'porths, "warm from the cow," and yet these people, although they tell you this, will continue to deal at the same place if they get double measure for their money. That is what I was cautioned about before going into the business. A dairyman said to me, "If you go into poor parts you will find the people will rather have a bucketful of swill for a halfpenny than half the quantity of genuine milk for the same money." I have not examined any of these adulterations myself.

Mr. MICHAEL—According to the evidence before us there is no substance which can be mixed with milk for the purpose of adulteration. Sometimes a decoction of turnips or parsnips is used to sweeten it.

The CHAIRMAN—Is this plan of yours capable of further extension?

Mr. CHAMPNEY—I may probably open three or four more shops. They will be in the same neighbourhood, because it is more economical to keep them together, in order that they may assist each other according to the

demand, which is very uncertain. I keep one man to keep constantly going round and testing the milk. It is all sold at the shops. When I opened a new shop in Broad-street, a great many people came over from Regent-street, and asked us to send it out. I told the woman in charge to say that probably I might, but that it could not be sent out under 6d.; the usual response to that was that it was ridiculous; their milkman sent it out at 4d., and very good milk too. The milk comes up twice a day, and a van fetches it from Victoria-station and delivers a churn at each shop. The churns are locked, so that the only possible risk of fraud to the customer is that which might be committed by the person in charge of the shop. I have heard of instances in which, when a boy has been sent for a quart of my milk a dairyman has given the boy a penny and taken away the good milk and replaced it with bad in order to bring discredit on me. I have not yet hit on any means of utilising the milk which is left over, and which is thrown away. I reckon that, on an average, one-twentieth of the milk is wasted. The only means of disposing of the waste is to biscuit-bakers, who will only give a penny per quart, and do not care about it until it is sour. I generally pour it down the gutter. All dairymen have waste. I have given some to the Charing-cross Hospital, but in general the hospitals refuse it. For some time I gave the Middlesex Hospital about 18 or 20 gallons a day, but of course the quantity was uncertain, and when I called there they told me they were much obliged, but it really was a loss to them to receive it, because, if the supply fell short, they had to buy it at a higher price, whereas, if they made a contract by the year they could get it much cheaper. The demand is very irregular; one day there might be a lot over, and another not enough; and this may happen at all the shops together on the same day. I tried for a short time a small atmospheric churn, to convert into butter what was left, and then it was spread about directly that I was taking the cream from all the milk; therefore I discontinued to use it.

The CHAIRMAN—Do any of the better classes take the milk, and let it stand for cream?

Mr. CHAMPNEY—Yes; and the poor do that also; and that is one reason for their dissatisfaction sometimes, because the milk is not always of the same richness. I mix all the milk together, so that the whole produce of the farm is uniform on the same day. As regards the management of the stock, I endeavour to have them calve as regularly as possible two calves a-week. There is another thing which increases my expenses. When you sell to the trade, they are not particular as to the supply being up or down a little, but if my cows drop ten gallons, I must keep up the supply, and have to buy cows at any price in order to do so, or else people may come and go away again, and that would not do. A dairyman always has a supply for counter customers, for he will keep on making until he closes his shop. I find no difficulty in getting trustworthy persons to sell the milk. I have always been very fortunate in getting good people about me. Some people say it is because I pay them well. They work from half-past six in the morning until half-past nine, and some of them are so eager to do business that they will keep open until nearly 12 o'clock. It would not do to go into better neighbourhoods, as the servants would not fetch it. I use the ordinary shaped churns for sending the milk in. There is a French invention, the merits of which is that it is air-tight; and a man who has one says that he has kept my milk in it for a month. I find the milk looks better when it arrives then when it leaves the farm, but I do not consider that an advantage. I always cool the milk down before I send it off. I believe the dairymen usually give good measure, because they give a "sip" over, and the poor people like that. I keep about 100 cows, of different kinds, and I do not think any are better managed. My farm is a clay soil. The cows are entirely stall-fed except in the summer;

but I consider feeding the least important thing for a cow. I should think I am about the worst feeder anywhere, yet my cows look well. There are several things before feeding; one is kindness; that is very important; then cleanliness and regularity. The most important thing is, regularity in feeding. My cows are all fed to a minute, and milked to a minute. Then, again, the temperature is kept as regular as possible. Farmers are astonished when they see what my cows live on, and how well they look. They never have a handful of hay, either long or cut. I cannot afford to give cows hay. I sell over £1,000 worth in the year. I give them straw—either wheat or oat-straw, anything we have—and mangold, mixed together. The straw is made into chaff, of course, and the mangold is pulped; the proportion I leave to my foreman, but I think it is about half and half. I do not let it ferment. It is pulped at eleven o'clock in the morning; half of it they get at six the same evening, and the other half at seven in the morning. On Sunday it is kept a little longer, because we do double work on Saturday, and we do not get quite as much milk on Sundays. They have as much as they like to eat of this twice a day, and one meal of grains besides—about a bushel each. On an average each cow yields eleven or twelve quarts a day the whole year round. I give them no meal, cake, or anything of that kind, though I used to be a large consumer of cake. We begin with swedes, and when they are done we go on with the mangold, which lasts until the cows are turned out. The milk will never taste of the swedes, or anything else, if you feed after milking. I keep up the bushel of grains all the year through; in the summer the cows have nothing but the grass and grains, and sometimes part of the grains are wasted. I take them in as soon as the grass is done. I do not breed my cows; I buy them, any sort. I have only kept so many for about four years, and I have some now I began with. I sell the calves to a farmer who takes them by contract at 25s. each, three days old. I had some trouble before I could sell them, for butchers would come and bid me 5s. for them. I had to send for an axe, and chop their heads off, in order to show it was no use bidding me less than a fair price, before I could dispose of them. I lost none of my cows by the rinderpest; we had some within four miles, and I kept a strict quarantine. I use a shorthorn bull, but I am not particular; my bulls are very profitable. I buy a young bull, perhaps half-starved, for about £10; I keep him a year, and he eats all the refuse which the cows will not eat (he gets nothing else), and in February I may sell him for about £25. I do not think it would answer my purpose to get well-bred bulls in order to get more for the calves, because I might have to keep them longer, and a farmer will come and spend hours haggling over a shilling on the price of a calf; my main object is to keep up a regular supply of milk. I do not think I shall make much more profit the first six months than by selling to the trade, but I have had to pay for learning. I do not think the system could be carried out successfully on a very large scale.

TWENTIETH ORDINARY MEETING.

Wednesday, April 29th, 1868; WILLIAM HAWES, Esq., F.G.S., Chairman of the Council, in the chair.

The following candidates were proposed for election as members of the Society:—

Brooke, William, Northgate-house, Huddersfield.
Waddington, John, 35, King William-street, E.C., and
Hope-villa, Longton-grove, Sydenham, S.E.

The following candidates were balloted for, and duly elected members of the Society:—

Eyre, Major-General Sir Vincent, C.B., Athenaeum Club, S.W.

Lawrence, Edwin, LL.B., B.A., 94, Westbourne-ter. W.
Scott, John, 21, Newton-road, Bayswater, W.
Solomon, Asher, 8, South-street, Finsbury, E.C.

The Paper read was—

THE PROGRESS OF OYSTER CULTURE
DURING 1867.

By HARRY LOBB, Esq.

In March, 1867, I had the honour of reading a paper to this Society, entitled, "Successful Oyster Culture," the Hon. Stephen Cave, the then Vice-President of the Board of Trade, being in the chair. A very interesting and instructive discussion resulted, in which that gentleman explained the views of the Government as to the legislation on this important subject, the nature of which I entirely disapproved. That you may clearly understand the paper of this evening, I must beg your indulgence whilst I give a very short *resume* of that previous one.

For convenience, I may consider it under two heads—the new successful system of oyster culture, and the policy of the Board of Trade, under the régime of the present Government. As to our oyster fisheries, I stated my belief that the cause of the great dearth of oysters was owing to the greed of the dredgermen—that having exhausted local beds, they searched far and wide for others. When a new bed is discovered, the lucky man keeps it to himself as long as he can, but this is not long; the intelligence soon gets wind, when numbers of dredgers congregate, and working at every favourable season, they do not leave it whilst an oyster is left. Thus the goose is destroyed, and no more golden eggs are laid. This policy has been for years, and is now carried on in all our waters (except the Irish), for the dredgers from afar, having no local interest, do not care to preserve the bed, and the local men are obliged to take what they can, when they can, otherwise they would get none. I then showed that the French were in the same position as ourselves, but having recognised the fact, they had set about to find a remedy. M. Coste, encouraged by the Emperor, had devoted much time and energy to the science of oyster culture, and succeeded in demonstrating that, properly worked, oyster culture was remunerative beyond the most sanguine anticipation. I then described what had been done at the Isle de Ré—my own visit to Arcachon—followed by a description of the Hayling system, with its first year's success. In my strictures upon the policy pursued by the Board of Trade under the guidance of its vice-president, I stated my belief that the remedy for the oyster dearth was "the establishment of private breeding-beds, and the renovation of the natural beds by judicious legislation." In the discussion Mr. Cave recognised the value of my suggestions, but could not agree with me as to the necessity of granting exhausted natural beds to capitalists, that they might be re-stocked and rendered again prolific, his idea being that every dredgerman should have allotted to him a small area to cultivate and work for his own benefit.

In the paper of this evening I shall also consider the question under two heads, the results of private enterprise, and the Board of Trade policy. At Hayling the company had during the winter and spring of 1866 prepared thirty-eight acres for breeding purposes, two beds, of respectively eighteen and twelve acres at Langston, and eight acres at the Sulterus, where, you may remember, the spat was obtained the previous year. On the 1st of July bed B, eighteen acres in extent, in which 12,000 hurdles had been laid, was found to be full of spat; every hurdle examined was found to be abundantly covered with young oysters, almost microscopic in size. Bed B is the most westerly, and was the last prepared. Bed A, only separated from it by a narrow embankment, contained no fixed spat. When first examined there were about 250 young oysters to the square inch on the majority of these hurdles, and each hurdle being 8 ft.

long by 3 ft. broad, some idea of the prodigious numbers on the 12,000 hurdles, besides those fallen upon the shingle, may be imagined. The spat of 1866 passed through the winter uninjured by the very severe weather, and it is now tolerably certain that an annual spat may be anticipated at Hayling, and that the oysters secured will live through the winter.

Besides this large spat at Hayling, smaller spats have been secured in the Isle of Wight, and also in Exe-bight. Of these, however, I have not been able to obtain authentic information.

What, then, has the experience of 1867 added to our knowledge of the science of oyster culture? Some of the observations are somewhat puzzling. No spat was obtained in the pond in which it had appeared in 1866, although every care was taken; again in the 18-acre pond an immense spat was secured, whereas in the adjoining pond, under almost similar conditions, there was no result. These facts might cause some to doubt the value of this science, but when we come to examine more closely into the surrounding influences, and have several years' experience, I believe that oyster culture will be as certain as the cultivation of the hop, flax, or even the grapes; and when we consider that an abundant spat, carefully preserved, is sufficient to keep the oyster layer employed five years, and that an acre of breeding-ground, properly stocked with collectors and shingle, is sufficient to supply with young oysters during the first year, ten acres of growing beds; second year, thirty acres of layings; and the third, fourth, and fifth years fifty acres, there is nothing in the whole range of enterprise holding out such anticipation of enormous results as oyster culture based upon scientific principles. The above calculations are derived from the fact that upon every square inch of hurdle about 250 young oysters settle. Now, if these young oysters are separated one from another shortly after the spat has been secured, they will live; if, however, they are allowed to remain upon the collector, some grow much more rapidly than others, and these, gathering to themselves—by their superior size and strength—all the nourishment passing in the water over this space, the smaller are starved, and very soon die; so that, upon examining the hurdle that has been left too long unstripped, upon every square inch of surface perhaps six tolerably large oysters are found, with ten or a dozen smaller ones, and some 200 minute shells with the oysters dead and gone. If, therefore, we take 250 oysters to the square inch on the hurdles in the breeding pond, and consider that the full-grown oyster in its laying requires a square foot of ground to keep it healthy, I do not think that my calculation of the various areas is exaggerated, even allowing for a considerable loss from stripping, carriage, and other accidents incidental to their movement. At Hayling a still larger area is preparing for the breeding season of 1868, and there can be little doubt that, in one or more of these beds, as abundant a spat as that of 1867 will be secured.

Through the late financial panic, and want of public confidence in all joint-stock enterprise, however sound, no more oyster companies have obtained their capital, so that the result of private enterprise during 1867 (as far as I have been able to ascertain) is a very abundant spat upon eighteen acres of ground at Hayling, and two smaller at the Isle of Wight and Exe-bight, and this, for the whole of the United Kingdom; there has been no natural spat of any moment anywhere in British waters. In four years, therefore, allowing for loss, 30,000,000 oysters will be marketable, enough for one month's consumption for London during ordinary times of demand. It would therefore require an annual spat as abundant as that at Hayling over 216 acres of ground to supply London alone, not to mention the provincial and enormous export trade. In fact, if good marketable oysters could be supplied at fourpence a dozen retail, there is room for more than all our estuaries could supply, for it must not be forgotten that an oyster is four years old

at least when it comes to table. We want, therefore, 50 new oyster companies to be started at once, and *then* we shall not be able to bring down the price of oysters, or supply the market, for years.

And now let me consider the proceedings of the Board of Trade, guided by the policy of its vice-president, the Right Hon. Stephen Cave, member for Shoreham; and I trust that I may not be led away to express myself in too strong language upon this subject; for, when I consider the vast powers that the recent Act has conferred upon this Board, and the immense amount of benefit that might have been done, in contradistinction to the paltry results effected during 1867, I almost think that I have discovered the office dubbed by Mr. Dickens "Circumlocution."

"An Act to facilitate the establishment, improvement, and maintenance of oyster and mussel fisheries in Great Britain" having passed, several public companies, acting to the best of their abilities under the uncertain light shed by the Board of Trade, applied for grants of several fisheries. Some of these, perhaps, were rather extensive, and the Board refused them all without public inquiry, the fact being that they did not themselves know what they were about—no inspector had been appointed—and the safest course was refusal.

In my paper of last year I said—"The Board of Trade having taken upon itself the responsibility of legislation to facilitate the formation of private beds, to increase the supply, and, consequently, lower the price of oysters, the public are somewhat disappointed to find that, up to the present time, nothing has been done, and the price of oysters is steadily increasing. It is hoped that this session may not be allowed to pass without some orders under the Act being granted." Since the reading of my paper thirteen memorials have been addressed to the Board for grants of several fisheries. Mr. Cholmondeley Pennell was appointed inspector, and several important inquiries have been made. Being consulted as scientific witness in the largest and most important of these, I am in a position to give a brief history of this inquiry, showing the great labour, the immense expense, and the time lavished upon it, and the paltry result.

"Parturiant montes nascetur ridiculus mus."

The Blackwater is the largest of the Essex estuaries, and runs from west to east; the Colne, an important oyster river, runs from north to south. These two rivers empty themselves at right angles over an area of seabottom termed the "Pont." This spot is the most prolific natural native oyster bed in England, and is the only one not quite exhausted; it is just worth the while of the local dredgermen occasionally to go out for a dredge. This bed, from time immemorial, has been the great nursery for native oysters. Here the Whitstable Company purchase the largest amount of "brood and ware" for laying, and the Essex oyster-layers obtain their stock. Upon the passing of the Oyster Fishery Act, I went to Maldon, and called a public meeting, with the idea of calling the attention of local capitalists to the importance of their river, hoping that the Blackwater might be re-stocked and worked. My efforts were crowned with success, a company already existing, but that had been in abeyance for some years, and two fresh companies, were established, the result being that three memorials were sent in to the Board of Trade. After some delay an inquiry was granted, and Mr. Pennell was sent down to Maldon to hear evidence for and against the grants.

The evidence may be considered under two heads, scientific and practical; the former, represented by Mr. Francis Francis, of the *Field*, Dr. Baird, and myself, was entirely in favour of the grant; the latter was conflicting. But it was clearly proved by all, that the upper part of the river had been for years abandoned by the dredgermen as completely worked out; that it was covered with sludge; and that, if a spat occurred, there was nothing for the young oysters to attach themselves

to, the bottom being so foul. The middle portion of the river was better; a few oysters were left, but not in sufficient numbers to pay a man to dredge for them, the consequence being that this portion of the river was getting, and would soon become, as bad as the upper part. The lower division of the river was the cleanest, and there were more oysters there, and dredgermen going from Tollesbury, Mersea, &c., to the "Pont," put out dredges, and thus kept this portion of the river cleaner; consequently, should a spat fall, much of the cultch here would be fit to receive the spat.

The three companies formed for the purpose of cultivating the Blackwater had a nominal capital of £150,000, not a penny too much to do the thing properly, as from the foul condition of the bottom much labour would have to be expended before even the oysters for breeding purposes could be laid. Should a spat fall, the oysters would not be fit for market under three or four years, without a very large spat was secured, when some of the brood might be sold to layers, as has been always the custom on the Blackwater. Thus we see that no return upon the capital of the companies could have been anticipated under some years; still the influential Dengie farmers, the large millers and cornfactors of Maldon, and Essex gentry, did not object to risk their money in this pursuit. The opposition to the grants came principally from a local lord of the manor, proprietor of oyster layings, from the solicitor of the Colne dredgermen, and from the Whitstable Company. After an inquiry sitting at Maldon seven days—after 55 witnesses had been examined for and against—after hearing council for and against, Mr. Pennell sent in his report. The Board of Trade, intimidated by the opposition of the dredgermen, by the statements of the members for Essex, and by Mr. Cave's declared policy, refused all three orders, but, as a sop, a portion of the upper part of the river, so foul and bad as not even to have been applied for, was granted to one of the companies. What is the result? Is anybody satisfied? Not one person connected with the inquiry, for or against. First, the Board of Trade are forced to acknowledge that the Blackwater must be eventually yielded to capitalists; second, the local lord of the manor receives no rent for his layings; the dredgermen who incited him to oppose the grant, having no oysters to lay, pay no rent. On some future occasion we shall find this gentleman ranged on the side of the memorialists. The opposing dredgermen are actually starving, they cannot get a day's dredging in a week, and the oysters they obtain they are obliged to sell immediately as they cannot afford to lay. The Whitstable company, who have been accustomed to purchase large quantities of brood from the Blackwater, now that it is exhausted get none; and thus, having opposed its cultivation, the result is that native oysters are hardly to be purchased by the public, and at the few shops in London, where they have been attainable, the price has been 2s. 6d. a dozen; and, except in these few shops, no natives have been retailed in London since the 15th of March.

Now, let us look on the other side. Suppose these orders had been granted, what would have been the result? The local dredgermen would have obtained regular and remunerative employment; the lord of the manor would, in the course of a year or two, let his layings at a far higher price than he had ever previously obtained; and the Whitstable Company would have been able to purchase brood on better terms, and in any quantity. To prove these statements, let us hear what Mr. Pennell says as to the results of the Roach River Oyster Fishery:—"A vigorous opposition was offered to the enclosure of the Roach River Company's grounds on the part of local proprietors and dredgermen, but, according to the testimony of the manager of the fishery, corroborated on oath at the Blackwater Inquiry, all objections on the part of the latter had now ceased, and the dredgermen were favourable to the company, and glad to take service under them. Immediately on the passing of the act dredgermen's wages throughout the neighbourhood rose

15 per cent.; and the company already give regular employment to forty-three men, a number greatly in excess of those who previously eked out a precarious livelihood by dredging over the appropriated grounds." This is the report of the gentleman appointed by the Board of Trade to take evidence on the Blackwater, and yet, in spite of the evidence, the Board refuse all the grants. What would the Emperor of the French have done in a case like this? He would have sent down M. Coste, a man of science, yet a practical man, upon whose opinion he could rely. Upon his report the Blackwater would, by this time, have been under cultivation, stocked; and probably this year a spat would have been secured; and in the course of four or five years, it would have become a vast area of cultivated oyster grounds, with the Emperor's own bed leading the way, and showing what can be done, when science, energy, capital and labour are linked together in a good cause. Whereas, the Board of Trade have put local enterprise to an expense exceeding £2,000, without the slightest beneficial result; have disgusted everyone connected with the inquiry, and brought the Board into greater disrepute than it had already attained.

During the year 1867 thirteen memorials for several oyster fisheries were addressed to the Board of Trade. Of these only one grant has been made, namely, the river Hamble. This is a small river, running into Southampton Water, and not of the least importance, as it is only suited for layings, and does not produce a choice oyster.

Before I conclude my paper I must say a few words upon the new act now under consideration in the House of Lords—"The Sea Fisheries Act of 1868." I am not competent to give an opinion upon the sea fishery part of the bill, but the portion devoted to the oyster fisheries is enough to condemn it. The Oyster and Mussel Fishery Act has been modified and embodied in this bill, and appears to be the work of a confirmed oyster-phobist, one who is determined that no fossil oyster shells shall be found by the geologists of the future in the British strata; that no British Sphinx shall ever be carved from stone containing oyster shells; for, should this Act become law, and the Board of Trade continue their declared policy of refusing all grants, as they have done, and the public refuse to find money for private enterprise, it is not possible that an oyster can be left in the course of a very few years. This bill would have been passed before the Easter recess had it not been for the courageous persistency of Mr. J. Redmond Barry, the Commissioner of Irish Oyster Fisheries. This gentleman has, by his representations, obtained from the Duke of Richmond, President of the Board, a postponement for further consideration. But let us see what the bill proposes. Firstly, there is to be no close time for the coasts of England, Scotland, and Wales, with the exception of the English Channel beyond the three-mile limit. The Irish waters within the three-mile limit will be under local regulations, but the deep-sea beds, and all waters outside, will be open to all the world all the year round. The French, as far superior in their regulations as they have been prompt in recognising the oyster dearth and its results, insist on the close time in the Channel, and this has been yielded by our Board of Trade. Secondly, by the new act, local corporations, large proprietors of foreshores, companies, &c., may by memorial obtain a hearing; an inspector will be appointed to take evidence; and if the opposition be sufficiently blatant, he will report this to the Board, who will consequently refuse to do anything, or, as the *Field* has tersely put it—"The dictum of the Board of Trade appears to be"—"you shall do nothing save through us, and you shall do nothing through us." If, on the other hand, the Board act differently, and grant every memorial sent in, what will be the result; every local corporation, proprietor, &c., may draw up their own regulations; we shall have any number of different close

times, dredging periods, &c., so that confusion worse confounded will result.

If it were possible to do away with the whole act, with the exception of the clauses by which oysters are now recognised as property, their removal from private beds or several fishery being felony, we should be well rid of it. Hear what the Irish Board of Works say of the draft bill:—"They feel it their duty now to express their decided opinion that if the proposed legislation for doing away with all close season in the seas around the British Isles, the English Channel excepted, was carried into effect, the Irish public oyster fisheries, now so great a source of profitable employment to a numerous class of men, would in a very few years be utterly annihilated." For it must not be forgotten that the Irish have put a stop to that system of "reckless dredging" which has cost us all so dear.

Allow me, in conclusion, to recapitulate the principal points in my paper, as follows:—

The proved success of the private breeding beds.

The absolute necessity of largely increasing them.

The complete failure of the Board of Trade in its attempt to renovate the exhausted natural oyster beds by legislation.

The inadequacy of the proposed "Sea Fisheries" Bill to grapple with the subject.

DISCUSSION.

Mr. A. J. PENNELL said Mr. Lobb appeared to complain of the Bill now before Parliament, on the ground that it abolished the regulations which had hitherto existed on the subject of oyster-fishing, but he believed that, in 1866, an Act was passed which removed all regulations affecting oyster culture, and the present Act would repeal that one, and it would still be in the power of the Board of Trade to make bye-laws regulating the catch, establishing close seasons, and also placing limits on the size of the oysters which might be taken. Then, again, Mr. Lobb said he wished the Board would act as the Emperor of the French would do, and consult such an authority as M. Coste as to the fisheries in the Blackwater; but the Board of Trade had selected Mr. Cholmondeley Pennell as the person in their opinion best fitted to advise them on the subject, and he believed they had acted entirely in accordance with that gentleman's report. He had himself had a good deal of experience in the artificial culture of oysters, and he must say that he could not endorse Mr. Lobb's very flattering account of its success, especially in regard to the removal of the young oysters from the hurdles, which was a matter of great difficulty. As he understood, Mr. Lobb recommended their removal very young, but the shell was then so fragile that it was almost impossible to accomplish the removal without breaking the shell adhering to the hurdle, and so destroying the young oyster. Indeed, he believed that Mr. Hart, the manager of the Hayling Island Company, had lost seventy-five per cent. of the young oysters from this cause alone, which was a matter of very serious consideration.

Mr. A. W. DIGBY thought Mr. Lobb had, perhaps, taken rather too unfavourable a view of the action of the Board of Trade, though he (Mr. Digby) might, perhaps, be unduly prejudiced the other way, as he represented the only one of the three companies which had been successful. He and his friends took a great deal of interest in the breeding and fattening of the oyster, and they had formed "The Fish and Oyster Breeding Company," their ground being in the upper part of the river Blackwater, which Mr. Lobb thought not so good as the lower part, but which, from local inquiries, they (the company) thought was superior. He believed Mr. Cholmondeley Pennell went down, quite unprejudiced in favour of any one company, and that his feeling was for making grants to all the three; but when the claims of some £1,000 or £1,500 dredgermen had to be considered, the Board of Trade naturally felt

somewhat alarmed as to the extent to which these men would be thrown out of employment. However, his company had obtained a grant of 350 acres, and it would be now their duty to see what they could do with it. They had commissioned Mr. Francis, of the *Field*, to go over the ground, and he had shown them how they might expect to realise a profit, not only at the end of three or four years' operations, but almost immediately, by bringing oysters from other parts, and laying them down to fatten. There appeared to be no doubt that oysters laid down in some parts would take something like three years to fatten; whilst, under other circumstances, they would fatten in almost as many weeks. The great success of an oyster lay appeared to depend principally upon a due admixture of fresh and salt water, and this they believed they had obtained in their ground. Mr. Francis, in his report, said there were two ways of collecting the spat, naturally and artificially. The former only required the cleansing of the ground in suitable places for the deposit, and then, wherever there were breeding oysters, spat would be deposited, though, of course, there might be exceptional years of famine, as there were of abundance. As a rule, however, it might be calculated that if the ground were favourable, the spat would fall upon it; and he thought that, with so many natural advantages as they possessed at Blackwater, it would be better to trust to nature than to artificial culture.

Mr. BAILEY DENTON said the reader of the paper had expressed his approbation of the proceedings of the French Emperor and of M. Coste, but he (Mr. Denton) knew enough of Englishmen to know that what would suit France would not suit this country. Englishmen were fond of looking to the debtor and creditor aspect of affairs; and if Mr. Lobb could inform the meeting that the Hayling Fishery had been successful in a pecuniary sense, he felt sure that all would be gratified with the intelligence.

Mr. PHILIP PALMER would also like to ask Mr. Lobb whether he thought the establishment of the forty or fifty companies he had mentioned would tend to restore anything like the old state of things with regard to oysters. That very day his fishmonger had told him that he had bought oysters at 30s. a bushel, whereas he had now to pay something like £8 or £9. They all remembered when oysters could be purchased at 5s. a barrel, but they now had to pay from 17s. to a guinea. He should like to know the mode of culture adopted at Hayling Island. He had supplied some time ago glass tiles for another oyster fishery, and he believed they were still at the bottom of the sea, but he was not quite certain what was the exact purpose to which they were applied. He had never received any order for those glass tiles for Hayling Island, and should therefore like to know if they were successful where they were in use.

Mr. HENRY BROOKS had had an opportunity on several occasions of going over the oyster fisheries at Hayling Island, and could therefore inform the last speaker that the plan of throwing down tiles for the spat to adhere to had been abolished for some time. With respect to what had been said by Mr. Pennell as to the destruction of 75 per cent. of the young oysters, Mr. Hart, the manager, had informed him that that arose from removing the young oysters from the hurdles, on which they were clustered so thickly as to occasion surprise at the enormous power of reproduction possessed by this fish. They had got over this difficulty now, however, in a very ingenious way, and he believed there were not 25, or even 15 per cent. destroyed in that way at present. The plan adopted now, instead of attempting with a knife or in any such violent way to detach the young oysters, was to break up the hurdle into small pieces, from which the bark was then detached, and, being supple, it expanded, so as to loosen the hold of the fish, which were then taken off (still on the bark) to the feeding-bed on the other side of the island, where they were allowed to float about, and they thrived very rapidly.

There was such an enormous quantity of spat deposited that unless the young oysters were removed in this way there would be no chance of their being reared. He had seen them at four months old when they were about the size of a fourpenny piece, and some as large as a sixpence. He was not connected in any way with the company, but from what he had seen of its operations he thought there could be no doubt of their ultimate success. So young a company, however, could not be expected to show a pecuniary return as yet, especially when it was remembered that oysters did not come to maturity for three or four years. With respect to the quality of the oysters those he had seen thrown in to breed from were very large, and were principally brought, he believed, from the coast of Ireland. They were very abundant and he had every reason to expect that those who had invested capital in the enterprise would have no cause to regret it.

Mr. BORLY said that according to Mr. Lobb's paper, the French Government were giving every encouragement to oyster culture, and the complaint against our Government was that they threw impediments in the way of persons embarking skill and capital in this enterprise, and this certainly was an evil. Every aid should be given by our Government to such an important branch of industry.

Mr. BLACKIE asked at what period the young oyster detached itself from the old one. He thought nature would provide in the best way for this operation, and that very probably evil resulted from forcibly detaching the young oysters too soon.

Mr. LOBB, in replying to the observations which had been made, said that when, two years ago, he wrote a pamphlet on oyster culture, he stated, in the preface that his object was to see oysters at 4d. a dozen, which was their legitimate price. That was still what he was aiming at, and not at any pecuniary advantage to himself; and indeed at present the result had been rather the other way. His object was to get oysters plentiful and cheap, for they were the most nutritious food that could be eaten, and in consumption and some other diseases there was nothing the stomach of the patient could bear so well as oysters in an uncooked state. Mr. Pennell stated that the Board of Trade had power to do certain things, and this no doubt was true, but they did not use that power, and never had done so. Again he said the Board acted on Mr. Cholmondeley Pennell's report, but he had reason to know that they did not do so. As Mr. Digby had stated, Mr. C. Pennell was decidedly in favour of the grants being made to capitalists, and he had already declared these views in his report on the roach river fishery. The next question was, as to Mr. Hart's losing 75 per cent. of his young oysters. That might have occurred in the first year from want of skill, but the loss was now very small indeed, and could not be more than 20 per cent., if so much; but Mr. Hopkins, the engineer of the company, was present, and would be able to give more recent information. He thought Mr. Digby must have misunderstood what he said as to the upper and lower part of the river Blackwater. No doubt the upper part, furthest from the sea, was very well adapted for laying, but it was not well adapted for breeding, and the two things were quite distinct; that which was good for breeding in was bad for laying, and *vice versa*. Laying was not the purpose for which these companies were started; they were started as breeding companies, because there was plenty of laying ground already. The Whitstable Company had the most magnificent laying in the world. At Milton, and all along the south coast of the Thames, there was capital laying ground; and also in the estuaries of many rivers, the Roach, and even in the Blackwater, the natural layings were very fine, but they had not an oyster in them. It had been said that his leaning was towards artificial culture; but that was not so; but if they could not get oysters by natural means, they must try what could be done artificially. All the natural beds were exhausted, and could not be restored by natural means.

They could not breed in the sea, but only in the estuaries, by artificial means, and, therefore, they wanted the help of the Board of Trade. He had much rather do without artificial means if they could in any other way restore the former state of things, when, as Mr. Palmer said, oysters could be bought at 30s. a bushel. The glass tiles were not used, as might perhaps be supposed, to act as a sort of greenhouse for the sun to come down and warm the oyster, but simply for the spat to be deposited upon. When they began operations at Hayling Island they tried the French system of tiles, but this was not so successful here as in France. They tried every form of tile, brick, chimney-pot, and slate, and only got one oyster about the size of a penny on the whole lot. The had now adopted hurdles, and had 12,000 wattled hazel hurdles in one pond all covered with spat. The French were very successful with tiles, but not so much so as the Hayling Company had been with the hurdles, for where they had a thousand the French had not more than ten young oysters. The tiles, however, were better adapted for the French waters, where the tide washed over them; while at Hayling the hurdles were embanked so as not to be reached by the tide. The tiles were placed in the form of *ruches*, or hives, one above another, with intervals between through which the water washed. That was the French system, which had not answered here wherever he had seen it tried. He was much obliged to Mr. Brooks for his statement, which was perfectly correct, and he must compliment him on being a most accurate observer. The only mistake he made was as to the breeding oysters, none of which came from Ireland, but from the Channel, near Dunkirk.

The CHAIRMAN, in proposing a vote of thanks to Mr. Lobb, said, that when he heard the paper he could hardly understand whether it advocated Government interference in oyster fisheries or not, for Mr. Lobb certainly expressed himself very strongly in opposition to the action of the Board of Trade. He was sorry that he had not given more information as to the causes of the remarkable scarcity of oysters during the last three or four years. As Mr. Lobb must be aware, opinions, quite different from those which he entertained, as to the cause of this deficiency, were held by high authorities, who maintained that the scarcity had nothing to do with the dredging or the other causes referred to in the paper, but was owing to circumstances over which they had no control, and which also affected agricultural products, viz., the peculiar fluctuations of the seasons. It was alleged that for the last three or four years there had been a concurrence of exceedingly cold weather just at the period of the deposition of the oyster spat, which destroyed it, and that to that cause, rather than to any question of dredging, or to any restrictions or conditions imposed by the Board of Trade, the scarcity was owing. He thought it a pity that Mr. Lobb had not alluded to these opinions. They had only had one side brought before them on the present occasion, and although he (the Chairman) did not profess much knowledge on the subject, he had read the evidence given before the Food Committee, from which he found that there were gentlemen, very distinguished in all matters relating to pisciculture, who differed very materially from the views entertained by Mr. Lobb. Passing on to the question of Government interference, he understood that the object of the powers given to the Board of Trade was to enable them to make grants to companies for the use of portions of estuaries, which were really Crown property, and which could not be used without such grants. The Board had power to make these grants, but before doing so it was absolutely necessary that they should thoroughly investigate the rights of all parties, and see that the privilege asked for by these companies did not materially interfere with existing rights. That was, as he understood, the duty of the Board of Trade, and he had not yet heard that its powers had been exercised capriciously. It might be, however,

as he believed was the case at all times when Government dabbled in trade and endeavoured to regulate it, that they produced a bad result. The usual system of Government was to discourage all early steps in the way of progress, and as soon as an enterprise had been established, in spite of all Government discouragements and delays, and was at all successful, then they stepped in, as they now wished to do, both in the case of railways and telegraphs, and took the "oyster" when it had been well fattened, and applied the profits for the benefit of the state. He hoped that would not be the case with the oyster fisheries. He trusted the fishermen would be left to take the risks and responsibilities of their undertaking, and that when they had succeeded in making profits Government would not step in and take them for themselves. They must all have been much interested in the description of the mode by which the young oysters were separated from the hurdles, which was exceedingly ingenious; and, notwithstanding all the praise which had been passed on the French Emperor, in having sent M. Coste round to the various oyster fisheries, it did not appear that this very ingenious method had been hit upon by our neighbours. M. Coste had recommended tiles, and all sorts of things; but he had not recommended the hurdles, which seemed, at any rate in England, to excel them all, and still less had he arrived at this mode of dealing with the hurdle with the young oysters upon it, by which from the altered shape of the bark when removed, the oyster was loosened and allowed to free itself, and to grow more rapidly to maturity. He hoped that the attention which had been drawn to this subject by Mr. Lobb and others would produce good results, and, indeed, it could hardly be otherwise, for whether they adopted the views of Mr. Lobb, Mr. Buckland, or of other authorities, they must all agree that when such men applied themselves perseveringly to an object of that nature, they must ultimately be successful, and the public, in the end, could not fail to benefit by their labours. He was sure they would feel that Mr. Lobb was entitled to their thanks for his paper.

The vote of thanks having been passed,

MR. HOPKINS asked leave to make one remark as to the loss of the spat by removal from the hurdles. He had been surprised at hearing such a statement made, because, in truth, the loss had arisen from non-removal. Where they had been removed they had thriven very well. The loss had arisen from such a large number of hurdles being covered with spat, that, being pressed for time, they had not succeeded in removing it all. He wished to correct the statement that had been made, because he should be very sorry that the notion should get abroad that a loss of anything like 75 per cent. was sustained. As Mr. Lobb had said, 20 per cent. would be very much nearer the mark.

MR. GEO. W. HART writes:—"I have read the interesting evidence on oyster culture by Mr. Buckland before your Food Committee, and published in the *Journal* of the Society of Arts of 17th April, with much pleasure, as possibly, from the subject being kept before the eyes of the public, we may hope some day our Government will consider it to be worthy of further attention than it has yet received. Truly, when we see the efforts made by the French to provide cheap food for the nation, and have witnessed the great results of their endeavours, we must feel ourselves to be wanting in that energy usually inherent in Englishmen if we do not bestir ourselves to bring a like blessing within reach of our poorer classes. Inertness in a matter of such great importance is not only a sin, but a folly, which will assuredly bring its own punishment. The first step is to obtain trustworthy information; this should be the business of men who are not only naturalists, but also practically acquainted with the working details of the subject. Pure theorists overlook actual difficulties, whilst on the other hand so-called practical men only follow their noses, ignorant of causes, and

knowing only the results; both are necessary, and should be associated on such an inquiry. The evidence given before the Sea Fisheries Commission, although valuable as a collection of matter and opinions, requires carefully sifting by those personally knowing the localities it refers to, before the truth can be gleaned from such a mass of contradictory and self-interested and prejudiced statements. In one point both Mr. Buckland and myself agree, which is, that at the present moment we know absolutely nothing at all of the subject: each has a theory based on very insufficient data, and therefore one constantly overthrown by some new fact. Mr. Buckland's theory is "temperature" pure and simple, and this he thinks accounts satisfactorily for the failure generally of the oyster beds both at home and abroad. I admit temperature does play an important part in the matter, but I shall adduce a few facts which will I think prove that a low temperature alone is not the cause of the oyster famine. For the past two years I have a record of the temperature, both of the air and water, in our oyster ponds, taken here daily so as to give six readings during the twenty-four hours; last year also I added another column, showing the temperature of open harbour water, together with the force and direction of wind, cloudiness of sky, &c. These observations certainly favour the idea of a warm summer being favourable for a spat, but no more than this; and the following will, I think, be admitted to oppose strong arguments against the "temperature pure and simple" theory. First, in 1866, I had two breeding ponds, in Chichester harbour, close together, supplied directly from the same channel; temperature in both equal, yet one pond produced a good spat, the other failed. Again in 1867, the same anomaly occurred; two breeding ponds side by side, separated only by a two-foot bank, presented similar results, one produced an immense spat, the other so little that it did not bear the least comparison with the other; there was a reason, but it could not be difference of temperature; besides which, the temperature of the open harbour water was, during the spatting, equally high, or nearly so as that of the ponds, and yet there was no spat there. Again, although the temperature in Essex may be lower than that at Hayling, yet a Suffolk farmer obtained a spat last year in a river, where he took the proper steps. Now, there cannot be any argument for the temperature theory here. Perhaps Mr. Buckland is not aware that a very great portion of oyster spat, when emitted, is unfertilized, unimpregnated. The microscope revealed this fact last year, and I shall anxiously examine spat this season to see if it occurs again, because, if this should be generally noticed, it is a point that will bear most importantly upon the success or failure of oyster culture. Again, Mr. Buckland says oysters require cold water to fatten. This, also, is an error. Oysters fatten in warm water perhaps better than in cold. Certainly in winter they get thin and poor, and recover themselves on the approach of summer. Dr. Kemmerer, who is no mean authority in these matters, states that an oyster, to fatten, requires warmth and quiet—here, again, "where doctors differ," &c. The fact is, scarcely any theory is set up to account for the failure of spat that cannot be demolished by facts tending to prove directly the opposite, whether the theory relates to the right and best way of either breeding, growing or fattening oysters; the circumstances vary with the locality. Instead of putting up theories, let us set about collecting facts, from which something tangible may be afterwards evolved. With regard to the habits of other salt-water fish, I may add that the south of England (not the Hayling Island) Oyster Company's grounds are extended over upwards of 100 acres, and some of their ponds, ranging from 7 to 28 acres, afford a good opportunity for the study, and that if any plan can be hit upon by which information can be acquired in this branch of pisciculture, both the directors and myself as manager, will be happy to do anything to further an object of so much public importance. One fact in particular I should like to impress on the Food

Committee of the Society is, that, last winter, sprats were sold here 12 gallons for 4d., at a time when the East-end of London was famishing for want of food. Surely, before next winter arrives some plan can be hit upon by which the sin and shame of using fish for manure, in times when there is so much distress, may be henceforth avoided.

Hayling, 24th April, 1868.

Proceedings of Institutions.

HULL YOUNG PEOPLE'S CHRISTIAN AND LITERARY INSTITUTE.—The decision as to the merits of the essays sent in competition for the prize of ten guineas, offered by James Clay, Esq., M.P., to the members of the Young People's Christian and Literary Institute, for the best essay on National Education, and the two supplementary prizes of five and two guineas, offered by the committee of the Institute, has just been made known by the examiners. The prizes were offered at the end of October, and the essays sent in at the end of February. Nine essays were submitted, several others intended by their authors for competition being unfinished owing to shortness of time. The gentlemen who, at the request of the committee, kindly undertook the office of examiners are Charles Neate, Esq., M.A., M.P. for Oxford, and J. D. Morell, Esq., M.A., LL.D., one of her Majesty's Inspectors of Schools. It is satisfactory to the friends of the Institute that all the essays are considered very creditable. The award is as follows:—"The examiners concur in stating that the first prize is due to the essay bearing a Greek motto. This one distances all the rest so greatly that there never could be the smallest question as to its relative superiority. It is altogether a very remarkable production. The one we think should hold the second position is 'Meliora Sequor,' and the third 'Fiat Justitia.' We may also add, in justice to the author of 'Interea Loci,' that we think it very little inferior to the two above mentioned." The author of the prize essay (Mr. Clay's) is Mr. A. B. Greenwood, 4, Mount-place, Hesse-road; of the second, Mr. Henry Best, 20, Leonard-street; and of the third, Miss Harriet Hill, 27, Francis-street West.

EMPLOYERS AND WORKMEN IN FRANCE.

The constitution of the Conseils des Prud'hommes, and of other institutions affecting the relations of employers and workmen, is being seriously considered in France at the present moment. The subject was discussed the other day in the Corps Legislatif, on a motion made by M. Jules Simon. Still more recently the report of M. Devinck, the president of the commission for organising the visits of working men to the late Exhibition, has appeared, and the following are the principal points of the recommendations of the ouvriers relating to the institution in question:—

The first point is the formation of Chambres Syndicales. The delegates declare such chambers to be valuable as contributing to prevent strikes, the plagues of industry, which injure working men even more than employers. In their opinion, when a difficulty occurs it should be met by methods of conciliation, and a syndical chamber of the trade should be immediately placed in communication with that of the masters. The workmen add, that as employers have established such chambers, they think they should be permitted to do so likewise. Such conferences, they say, already exist in Prussia. In Paris there is a class of superior workmen, who receive pupils, and give them lessons at very trifling cost. The report of M. Devinck proposes to authorise and generalise such arrangements.

As regards the Conseils des Prud'hommes, the ouvriers are almost unanimous in their expressions. They propose the augmentation of the number of these

councils, and a new classification of the industries which compose them. They complain that they are compelled to deposit their votes in their respective districts, and have not sufficient means of consulting respecting the choice of their representatives; they propose also that all the members of these councils, whether masters or workmen, shall receive a fixed allowance for their attendance. They demand that changes be made in the Code Napoleon and the law of 1854 respecting the *livret*, or workman's passport, and also in the article of the law which makes the mere affirmation of the master sufficient as regards the amount of wages, the payment of salaries for the past year, and the balances due on the current year. One of the grievances respecting the *livret*, which every workman in France is supposed to possess, and which contains entries, under the employer's hand, of the dates at which the ouvrier entered and left his employment, is, that the little masters, that is to say, workmen who work on their own account or to order, have no such books, and thus are excluded from voting for the members of the *Conseils des Prud'hommes*.

The subject of gratuitous and obligatory instruction is considered in many of the reports; in Paris the supply of gratuitous education may be said to be nearly complete, and fresh schools are opened wherever a necessity appears for them, but many of the workmen object to instruction being obligatory, as infringing the liberty of the individual.

Lastly, the delegates recommend the formation of co-operative associations, as one of the means of improving the condition of the working classes.

The general conclusion of the reports in question is in favour of the following principles:—Equality before the law; liberty of contract; the right of discussing business questions; the desire of arriving peacefully and progressively at the realisation of these views.

Upon these reports the Minister of Agriculture and Commerce has presented a report to the Emperor, which has been approved by His Majesty. In this latter document it is stated that many of the propositions of the ouvrier delegates are already under consideration, and will shortly receive solution. Amongst others, the arrangements respecting technical education and courses of professional study. This is now before the legislature. The Conseil d'Etat is now occupied with the subject of infant labour and apprenticeship. The views of the delegates have been carried out since the Exhibition, by the extension of the same rules to syndical chambers of workmen and of employers.

The law of France has not yet recognised the existence of syndical chambers except in the case of agents de change and other special professions; only the chambers of commerce and the consultative chambers of arts and manufactures are yet officially recognised, but a great number of free syndical chambers have been formed—there are more than eighty at present in Paris—and the chambers of commerce have often commissioned them to give their advice in cases of litigation, or to arbitrate between the parties. Acting on the same principles with respect to the syndical chambers of workmen as to those of employers, the State will not interfere in the matter, unless the law is infringed by any interference with the liberty of commerce and industry, or by the turning of such chambers into political assemblies. With respect to mixed chambers of employers and workmen, opinions are divided, and the government, therefore, declines to enter into the consideration of the subject.

With respect to the regulations respecting the ouvriers' *livrets*, and the relative privileges of employers and men, mentioned above in connection with the *Conseils des Prud'hommes*, and fixed by the Code Napoleon, the Minister says that the progress of education and improvement in manners render revision necessary, and recommends that the whole subject be referred to a special commission, who shall take evidence upon the subject. In addition to this, it is stated that the Minister of Justice has been instructed to lay before the Conseil d'Etat a

plan for such alterations as may be necessary, in order to establish equality between employers and workmen on these heads.

Fine Arts.

SALE OF THE SAN DONATO GALLERY.—The sale of the pictures collected by Prince Demidoff, and which formed the famous gallery of San Donato, in Florence, created immense excitement recently in Paris; the works were only twenty-three in number, but every one had a high reputation, and many presented the choicest known examples of the artists' works. The picture which fetched the largest sum, namely, 182,000 francs, was "The Congress of Munster," by Terburg, but the great historical interest of the work had much to do with this result. The works whose artistic value only were the most highly esteemed, were gems by Cuyp, Paul Potter, Hobbema (2), Isaac Ostade, and Teniers. The twenty-three works sold for 1,363,650 francs, or, on an average, nearly £2,400 each. Representatives of the authorities of the Louvre and of the National Gallery were present, but neither purchased anything.

MONUMENT ERECTED OVER THE SOURCE OF THE SEINE.—The municipal authorities of Paris have caused to be erected, in the Valley of Saint Germain, in the Côte d'Or, Burgundy, where the Seine takes its rise, a handsome ornamental edifice; the waters from the various sources are brought together in an artificial cave and fall from the rockwork into a small basin, whence they take their natural course, and form with their confluent the well-known river which enlivens Paris, and in Normandy become a grand stream covered with the ships of all nations. Over the entrance of the cave is the recumbent figure of a nymph, with the traditional urn, the work of Mr. Jouffroy, the eminent sculptor. A square, or public garden, has been formed around the source. This monument replaces a very old one, supposed to be of the Roman period, which stood on the same spot, and of which some remains, including a statue in bronze, were discovered some time since.

Manufactures.

EXTRACTION OF SULPHUR FROM THE ORE.—The process by which sulphur is extracted from the ore is carried on in Italy in a most primitive and wasteful manner. In Sicily the ore from the mines is put into a kind of kiln, with a slanting floor, and is covered with earth outside. This is called a *calcarone*. It is then set fire to at the top, and burns downward. When it has been burnt for a fortnight it is tapped at the bottom, and the sulphur is run out into moulds of wood. It will be easily understood that this system is most wasteful, as a large percentage of the sulphur contained in the ore must be burnt in the process, and the damage to vegetation in the neighbourhood must be considerable from sulphurous vapour given off. In Romagna the sulphur is extracted from the gravel and earth with which it is found in the following manner:—Ten or more earthen pots, about 3 ft. in height, and holding about 4½ gallons, are arranged round a furnace called a *gallery*. The pots are filled with lumps of sulphur ore; the tops are closed with earthenware lids, from which proceeds a pipe about 2 in. in diameter, which enters another covered pot, standing in a tub filled with water. On applying heat to the *gallery* the sulphur melts and volatilises, and runs down in a liquid state into the tubs, where it congeals. The defect of both these systems is the necessity of carrying the temperature to a high degree, which is very liable to cause a chemical combination of part of the sulphur with the lime or other matter of which the *gangue* is composed. On analysing the residue of the fusion by either of these methods a composition of

sulphate of lime will be found. In the *calcarone* a further loss of sulphur is sustained, by being converted into sulphurous acid by contact with the fire, and which has most injurious effects on the atmosphere and the vegetation in the neighbourhood. The following is an analysis of the average sulphur ore of Romagna:—

Sulphur	30·60
Lime	26·80
Alumina } Silica } <td>41·20</td>	41·20
Water	1·40
	100

From this ore, which contains 30 per cent. of sulphur, not more than 10 per cent. on the average is produced, the other 20 per cent. being wasted in the process. In this ore the sulphur is not found in chemical combination with any other substance, but is disseminated through layers of tertiary and contemporaneous formation. To melt the sulphur it is only necessary to raise the temperature to 232° Fahr., and at this temperature it is as liquid as water, and may even be filtered. If the temperature be raised the sulphur is very liable to combine with the other substances, and thus occasion a serious loss, as with the existing systems in use at the present time in Italy, namely, the "Calcaroni" in Sicily, and the distillation in earthen pots, as in Romagna; moreover, the sulphur thus obtained has to undergo another process of refining to fit it for commerce. A most important invention, whereby no loss is sustained, and every particle of the sulphur is extracted from the ore, is now being worked by a Milanese company, who have obtained the right of working it in Italy. The principle upon which this apparatus is constructed is the exposing of the ore in a closed vessel, and subjecting it to the action of the heat of steam at a pressure equal to about three atmospheres (274° Fahr.); it being well known that sulphur will melt at 232°, and at this temperature is as fluid as water, and were this temperature raised the sulphur would become thicker and thicker. The apparatus consists of a vessel in the form of a truncated cone, made of boiler plate, which is filled with pieces of ore. The principal dimensions are 1·20 met. diameter at bottom, 0·70 met. diameter at top, and 2·50 met. height. It is fitted with a grating at bottom, to prevent the ore falling into the receiver, which is placed below; under this grating there is a strainer, made of sheet-iron, pierced with small holes. Up the centre, passing from top to bottom, is a pipe communicating with the steam boiler; this pipe is perforated with small holes, so as to allow the diffusion of the steam amongst the pieces of sulphur ore. The receptacle for the ore, after being filled, is closed with a lid, which is screwed down with a steam-tight joint. A cylindrical vessel or receiver, mounted on four wheels, which run on a tram-road under the apparatus, is then wheeled into place, and securely attached to the former by means of bolts. This receiver consists of a double casing of boiler plates, forming a steam jacket, which is filled with steam from the boiler, for the purpose of keeping the melted sulphur in a liquid state. It should be added that the vessel which contains the ore and the receiver are both covered with a lagging of wood to prevent the radiation of heat. After the ore has been exposed for a short time to the action of the steam, the sulphur which it contains begins to melt, and passes through the grating and strainer into the receiver beneath, and is there kept in a liquid state until all has been collected by the heat of the steam surrounding it. A cock is then opened, and the liquid sulphur is run out into moulds. An immense saving of time is effected in this manner as compared with the old system, which, as we have said before, occupies not less than fourteen days, and often, in bad weather, a month or more. Some interesting experiments have lately been made at Milan with this apparatus, at the "Elvetica Iron Works," and have given most satisfactory results.

At this trial 4,000 kil. of ore were put into the apparatus, and in two hours 1,500 kil. of sulphur was produced, which was of such excellent quality as to require no refining. The consumption of fuel for producing the steam was 4½ quintals, but the average consumption would be considerably less, as the steam was generated under unfavourable circumstances from the boilers of two portable engines, and there was also a considerable loss of heat by radiation for a length of naked steam-pipes. Neither can the yield of sulphur be said to be the maximum, as, on examining the residuum in the apparatus, the gangue still contained a certain amount of sulphur, which would all have been run off had the operation been continued another half-hour. The mineral which was experimented on at Milan was Lercara ore, which would yield by the ordinary means 20 per cent. of sulphur; by this apparatus it produced 37½ per cent., and had the operation been continued for sufficient time the produce would have been at least 40 per cent., or exactly double that which would have been obtained by treating the mineral in the ordinary manner. The following is the classification of Sicilian sulphur, by M. Cussy:—

No. 1. Extraordinary ore, that which yields 25 per cent.	
,, 2. Rich	20 "
,, 3. Good	15 "
,, 4. Middling	8 "

By the use of this apparatus it will be seen that this yield might be doubled, and that it is called to play an important part in the sulphur industry in Italy.

PARAFFINE WATERPROOF CLOTH.—The following is an extract of a letter from Dr. Livingstone to James Young, Esq., Limefield, West Calder, Scotland:—"Country of the Chipeta, February 1st, 1867.—I am sorry that I never could write to Dr. Stenhouse about his invention. The sheet his agent gave me to place on the ground beneath my bed has been invaluable as a tent overhead. He offered me a covering of a lighter kind, and I regret exceedingly not having accepted it. The Mackintosh sheets I have tried are not to be mentioned in comparison. This black sheet is lighter, and lasts wonderfully; while the india-rubber sheet so glues itself together that you soon tear it to pieces in drawing the folds asunder. The first pair of boots have lasted during a five-hundred mile tramp, often over a rough stony soil, and in the driest, hottest season. I gave away the first pair, not because the uppers were broken, or the soles worn out, but because the inner seam had given way at the toes, and the heels were gone. I ought to have had a pair not Stenhouised to try against the others. I am now putting a second pair to a severe test, daily wet outside and in, and then exposed to a broiling sun. If they last long at this I shall let the doctor know. I think his invention really very valuable, and I wish you would give him this extract as a sort of acknowledgment for kindly providing that 'brick' of a sheet."

MANUFACTURE OF STARCH IN ITALY.—The principal centres of this manufacture are Venice, Ravenna, and Genoa, and in most large towns there are manufactories of this article, but the production is not sufficient to supply the wants of the country. At Genoa there are seven manufactories of starch, employing about fifty workmen. The average annual imports of this substance amount to 84,000 kil., of the value of 76,000 francs; whilst the average exports do not exceed 35,800 kil., amounting in value to 32,000 francs.

Commerce.

FURTHER TELEGRAPHIC REFORM IN FRANCE.—The draft of an act respecting the tariff of telegraphic dispatches has just been presented to the Corps Legislatif. The following are the new rates proposed by this bill:—For a dispatch of not more than twenty words, sent between two stations of the same department, 50

centimes, from any part of France to another, beyond the same department, one franc. In the case of Corsica a second franc is added for the Italian transit, there being at present no direct communication between continental France and Corsica. The above rates to be increased at the rate of 50 per cent. for every ten words in addition.

Colonies.

IMPORTS AND EXPORTS OF VICTORIA.—A private circular, dated Melbourne, March 3rd, says:—A statement of exports and imports from and into the colony for the year 1867 has been officially published, and we are enabled to ascertain the effect of the change in the tariff during 1867. The following table gives a comparative view of the principal branches of the import trade at three different periods:—

IMPORTS INTO VICTORIA, SPECIFYING TEN PRINCIPAL ARTICLES, IN 1859, 1866, AND 1867.

	1859.	1866.	1867.
App. and Slops....	£588,654	£517,157	£373,825
Beer and Cider....	666,470	300,878	297,103
Flour	720,660	259,034	43,091
Grain	1,237,824	1,172,400	509,095
Haberdashery and Drapery	1,505,920	674,524	275,062
Hardware	311,438	259,661	94,814
Leather, Boots and Shoes	626,253	397,927	292,209
Spirits	718,991	380,644	420,525
Timber	466,331	341,203	217,744
Wine	342,613	241,132	163,154
Other articles	442,737	10,227,151	8,987,458
Total	15,662,891	14,771,711	11,674,080

From the above table it will be seen that a very marked change has taken place in the import trade. Judging from the falling off in the import of such articles as flour and grain, it might have been expected that there would have been an increase in the import of merchandise which cannot be produced in the colony. But it will be observed from the above table that there is almost as great a decrease in the import of haberdashery and hardware as in that of flour and grain. On the other hand, the chief imports during the last two years are as follows:—

EXPORTS FROM VICTORIA, SPECIFYING THE PRINCIPAL ARTICLES OF COLONIAL PRODUCE (ESTIMATED VALUE IN 1866 AND 1867).

	1866.	1867.
Bones.....	£1,609 £1,336
Gold	5,909,987 5,738,993
Hides	42,715 26,755
Horns and Hoofs	1,355 434
Horses and Cattle	44,821 —
Sheep	23,437 —
Skins	11,056 2,503
Provisions	33,014 49,953
Tallow	6,599 34,968
Wool	3,196,471 3,813,347
All other articles	3,618,482 3,056,118
	£12,889,546	£12,724,427

From the tables of imports and exports it appears that while the colony is now nearly supplying itself with breadstuffs, and while there is a very slight decrease in the production of gold, there is a large increase in the export of wool and a considerable increase in the export of provisions and tallow. It will be observed that the

value of exports exceeds that of imports. Consequently there must be funds at the credit of the colonists in the countries to which our produce is shipped, and it is natural to expect that these will be invested in merchandise suitable for the colony. An increase in imports may therefore be fairly anticipated in the current year.

COLONIAL RAILWAYS.—It has been proposed to construct a railway from Burketown, in the Gulf of Carpentaria, to Melbourne. This seems a large undertaking, but one, considering all the advantages that would accrue from it, that might be fairly expected (says the *Port Denison Times*) to pay a large interest on the outlay. This railway would take the place of the navigable rivers of America, and if the Canadas have been able to make a railway absolutely in competition with such magnificent water communication as they have, the colonists ought surely to be able to make this line, which would command the whole traffic. An enormous amount of country would then be opened up, and great encouragement would be given to the rapid development of mineral resources. A grant of land along the line—say two miles wide, or an equivalent amount in blocks of the regulation shape, laid off at a sufficient interval along it, would go some way towards paying for the construction of the line, as a great proportion, if not the whole of the land on either side, and within a reasonable distance, would soon acquire considerable value. The length of the line would probably be 1,200 miles.

NEW PRODUCTIONS OF VICTORIA.—Amongst the new industries recently developed in Gipp's Land are the production of brimstone, which is abundant at Buchan, near the north-end of the lakes; and slate, for roofing, which has been quarried at Glenmaggie, and is apparently plentiful. A ton was sent to Melbourne, and approved of. In a very short time an important manufactory will be added to the numerous list of colonial industries that have sprung into existence recently. The first paper mill in the colony is now being erected. A few months since the necessary buildings were commenced, and have since been continued with such vigour that within a very short time papermaking will have commenced. An experienced foreman has been engaged; and the machinery, all of which is highly finished, and furnished with the latest improvements, was made in Edinburgh. The entire outlay will be about £20,000.

REVENUE OF QUEENSLAND.—The revenue of the colony of Queensland during the years 1866 and 1867 was for the former £617,672, and for the latter £686,582. These figures show that the revenue is steadily progressing, and in a sound and healthy state. The increase of the customs is very large, the collection for 1867 being £283,666, against £223,684 in 1866. It appears, however, that the additional duties are the cause of this increase, as the imports are very much less than they were in 1866. The duty on the gold exported for 1866 was £1,686, and for 1867 was £3,582. The total receipts of the land revenue, under the Leasing Act, amounted to £17,812, representing 2s. 6d. an acre on 1,442,496 acres of land already taken up.

Notes.

EMBELLISHMENT OF PARIS.—Demolition and construction continue to proceed in Paris without stint. An important undertaking is now under hand, namely, the piercing of two streets, from the junction of the Rue de la Paix with the Boulevard des Capucines. One of these streets will run from the Boulevard to the Théâtre Français, and form a broad and direct line to the Louvre and its neighbourhood; this street will be about 2,600 feet long. The other, starting from the same point, will pass to the Bourse, and be afterwards continued to the Boulevard Sébastopol, and will be about twice as long as

the former. One effect, and a very fine one, will be the formation of a handsome open space opposite the Place of the New Opera-house. One of the new streets is exactly in the line of the centre of the Opera, while the other will form the same angle with it as the Rue de la Paix, so that the New Opera will be seen and approached by three of the finest streets in Paris, converging symmetrically from it. The value of the property between the Boulevard and the Bourse is very great, and the total cost of the new streets must be large, but the value of the new sites thus formed must make this change a very profitable one, while the new street which ends opposite the Théâtre Français will demolish one of the most unsightly and least reputable quarters in the city. The other works set down for the present year include the completion of the New Boulevards of St. Marcel and St. Jaques, the formation of the New Park of Montsouris (which is carried on with vigour), the completion of the great central markets (two more sections of which have just been finished, leaving only two semicircular buildings to be erected to complete the plan, and unite the whole with the great rotunda of the old corn market), the rebuilding of the college Rollin, and the college Chaptal, the construction of a magnificent fountain on the site of the old fountain of the lions on the Place du Chateau d'Eau, and the completion of the new Boulevard St. Germain. This is a long list, but there is no doubt the greater portion of it will be exhausted before the year is out.

POPULATION OF THE ZOLLVEREIN.—The general result of the census taken throughout the Zollverein on the 3rd December last, is now known. The increase of the population has slackened during the last few years, but not so much as was thought. The total population of Germany, without Austria, is 38,697,344 souls, or half a million more than that of France, as shown by the last census. That of Prussia is at present 24,013,765. The increase during the last three years has been 423,126, or an average of 141,042 annually. The mean increase between the years 1855 and 1864 was 233,000; the diminution is more marked in some states than in others. Thus, in Bavaria, the population of which country was shown to be 4,823,606, the annual augmentation has fallen from 29,000 to 5,400. The number of inhabitants in Saxony is 2,426,193, and the increase has been 27,000 instead of 36,000 as formerly. The population in Mecklenburg, which was 552,612 in 1864, has now increased to 560,732.

RAILWAYS IN BELGIUM.—The receipts of the Belgian railways belonging to the state amounted, in the month of February last, to 2,747,737frs., being 103,892frs. more than in the corresponding month of 1867. During the first two months of 1868 the receipts were 5,431,261frs., being 175,487frs. more than in the similar period of 1867. The revenue of the telegraphic service has also progressed; in January and February last it amounted to 184,041frs., being an increase over the first two months of 1867, of 32,276frs.

PUBLIC INSTRUCTION IN ITALY.—During the course of the years 1866-1867 the number of students whose names were entered for the terms at the fifteen Government universities, namely, at Bologna, Cagliari, Catania, Genoa, Messina, Modena, Naples, Padua, Palermo, Parma, Pavia, Pisa, Sassari, Siena, and Turin, was as follows:—2,751 students of law; 1,985 of medicine; 1,299 mathematics; 115 literature and philosophy, and 633 pharmacy. The regular attendance of the students was:—Bologna, 380; Cagliari, 85; Catania, 157; Genoa, 167; Messina, 135; Modena, 296; Naples, 1,427; Padua, 1,487; Palermo, 173; Parma, 61; Pavia, 742; Pisa, 366; Sassari, 53; Siena, 91; Turin, 1,124. The degrees obtained by the students were 456 in law; 204 in medicine; 196 in mathematics; 20 in literature and philosophy; 51 obtained a diploma as notary; and 161 in pharmacy. In the above, the students at the Schools of Engineering at Turin, Milan, and Naples, and the School of Medicine at Florence are not comprised. In the Venetian provinces

the laureat is still obligatory for the profession of notary. In the 79 Government lyceums, 3,446 pupils were entered for the triennial course of studies. The 101 Government gymnasiums numbered 8,759 pupils for a quinquennial course. In the above, the lyceums and gymnasiums supported by incorporated bodies, and such like, are not included. The Government technical schools are 81 in number, in Upper Italy, Umbria, and the Marches, and were attended by 3,563 pupils. In Sicily and Naples, where in 1864-65 there were only 49 technical schools, there are now 55, and the number of pupils amounts to 1,233. In Tuscany and the Neapolitan provinces, the technical schools are supported by the communes; on the other hand, in Sicily they are entirely supported by the State; whilst in Upper Italy, Umbria, and the Marches, the expenses are borne half by the state and half by the communes. Besides the above-mentioned, there are various private technical schools. There are 26 government industrial boys' schools, with 1,608 pupils. The provincial and communal industrial schools numbered 972 pupils. For 1867, throughout the kingdom, with the exception of the Venetian provinces, the sum of 513,986frs. was paid in Government subsidies to 8,808 masters of evening schools. In the Venetian provinces there were 583 masters of evening schools who received from Government 39,480frs. The sum of 42,980frs., in subsidies, was paid by Government to 51 societies for promoting public instruction. 57 infant-schools received subsidies from Government to the amount of 21,470frs.

THE NEW READING ROOMS OF THE BIBLIOTHEQUE IMPERIALE OF PARIS.—The old reading room of this famous library was closed to the public on the 6th April, as usual, for the Easter holidays, and will shortly be replaced by two new rooms, one absolutely public, as of old, and open every day in the week, Sunday included, and supplied with a collection of classical, technical, and professional works of general interest and utility; the other is to be devoted to students and others who can bring evidence of serious literary occupation. This latter room will contain 328 numbered places, arranged nearly in the manner of the reading room of the British Museum, and the whole contents of the great library will be at the disposition of its readers. At one end of this room is a semi-circular enclosure for the librarians and attendants attached to this portion of the establishment. The day of opening is not yet published. The officers of the library are now occupied in arranging the library of printed books on the shelves of the new rooms and the adjoining apartments; and it is said that the total length of the shelves to be covered is about fifty-five kilomètres, or between thirty-four and thirty-five English miles. The entrances to the public and students' reading-rooms will be entirely distinct from each other. It is to be hoped that when these rooms are opened the practice of allowing eminent authors to carry books out of the library will be strictly prohibited; and, also, that the work of cataloguing will be vigorously carried on, for at present reference is extremely difficult, and for strangers almost impossible. Such a magnificent collection of books as that contained in the Bibliothèque Impériale deserves to be supplied with the best means of reference; and, we believe, that the learned and able directors of the establishment are as anxious as anybody to see these conditions fulfilled. Those who have watched the progress of the British Museum library can alone form any idea of the magnitude and difficulties of such arrangements.

Correspondence.

BEET SUGAR.—**SIR.**—In the discussion on this subject, on Wednesday, the 22nd, Mr. Pearsall characterised my statistics as unreliable, and the conclusion drawn from them as "absolutely incorrect." As I quite agree with that gentleman that it is wrong to quote figures at

random, and to found upon such random calculations either conclusions or objections, I forebore to defend my figures until I could verify them by referring once more to the Board of Trade returns, from which they were taken. I have now done so, and beg to enclose you an official copy, by which it will be evident to your readers that, in 1866, the imports from the colonies were in round numbers 9½ million cwts., and from the Continent 1½ million cwts., which was all that I stated on that subject. Now, if we reduce the 28,000,000 lbs. (which Mr. Pearsall asserts to have been the quantity imported in 1867) to cwts., we obtain only 250,000, *i.e.* a quarter of a million; this, therefore, instead of showing such an "enormous increase" for 1867 compared with 1866, as to render my conclusions "absolutely incorrect," will show (if Mr. Pearsall's figures are reliable) a most astounding decrease, and thus would leave my question still unanswered, as to whether our colonies have much to fear from continental competition. Mr. Pearsall did not, however, explain to us whether the 28 million lbs. included the whole imports into this country or those from the Continent only, or (if the latter) what proportion those 28 millions from the Continent bore to the colonial imports. Now it is precisely and solely upon that proportion, that the whole question turns, and I hope, therefore, he will oblige us with some further statistics on the subject.—I am, &c., WILLIAM A. GIBBS.

Gillwell Park, Sewardstone, Woodford, N.E.

SUGAR IMPORTED INTO THE UNITED KINGDOM IN 1866.

Total of Raw.

	ewts.
Prussia	17,800
Hamburg	221,949
Bremen	35,235
Holland	10,686
Belgium	184,187
France	551,047
Philippine Islands	524,563
Cuba	1,672,512
Porto Rico	167,417
Dutch Guiana	49,555
Central America	10,573
Brazil	1,333,296
British Possessions in South Africa	31,414
Mauritius	1,006,237
British India: Bombay and Sind	42
Madras	269,093
Bengal and Pegu	73,625
Singapore and Eastern Straits	15,984
British West India Islands	3,177,047
British Guiana	1,233,720
Other parts	53,073
 Total.....	10,639,085

Refined.

	ewts.
Holland	420,061
Belgium	66,577
France	167,598
Cuba	1,273
Other parts	4,875
 Total.....	660,384

MEETINGS FOR THE ENSUING WEEK.

MON.....Royal Inst., 2. General Monthly Meeting.
 R. United Service Inst., 84. Mr. James Mackay, "The Mackay Gun and Projectiles." (Commander P. H. Colomb, R.N., and Capt. Bolton will exhibit their new Signal Lights.)
 Society of Engineers, 74. M. de Merritens, "The Marseilles Docks."
 Social Science Assoc., 8. Dr. Lankester, "On the Mode of Election and Jurisdiction of Coroners."
 Farmers' Club, 54.
 Entomological, 7.

British Architects, 8. Annual Meeting.

Victoria Inst., 8.

TUES ...Civil Engineers, 8. Continued discussion on "Irrigation in India and in Spain."

Pathological, 8.

Anthropological, 8.

Syro-Egyptian, 74.

Royal Inst., 3. Dr. M. Foster, "On the Development of Animals."

WED ...Society of Arts, 8. Capt. Douglas Galton, "On a New Form of Ventilating Stove."

Geological, 8. 1. Mr. Alfred Tylor, "On the Quaternary Gravels of England." 2. Mr. S. V. Wood, jun., "On the Pebble-beds of Middlesex, Essex, and Herts." 3. Dr. J. Schmidt, "On the Eruption of the Kaimeni of Santorin." (Communicated by Sir R. I. Murchison.)

R. Society of Literature, 43.

Obstetrical, 8.

THUR ...R. United Service Inst., 84. Adjourned discussion on Major Leahy's and Major Bevan Edwards's papers on "Army Organisation."

Royal, 84.

Antiquaries, 84.

Linnæan, 8. 1. Dr. Shortt, "On the chief Enemies to the Coffe Plant." 2. Dr. Hance, "On the Silk-worm Oaks of Northern China." 3. Mr. McLachlan, "On some new Caddis-worms from New Zealand."

Chemical, 8. Mr. C. W. Siemens, "On the Regenerative Gas Furnace as applied to the production of Cast Steel."

R. Society Club, 6.

Artists and Amateurs, 8.

Royal Inst., 3. Prof. Bain, "On Popular Errors."

Society of Fine Arts, 8. Mr. H. Ottley, "Notes on the London Art Season."

FRI.....Astronomical, 8.

Royal Inst., 8. Mr. C. Greville Williams, "On the Artificial Formation of Organic Bodies."

R. United Service Inst., 3. Mr. Hyde Clarke, "The Military Value of a continuous Railway Communication between England and India."

SATRoyal Inst., 3. Prof. Bain, "On Popular Errors."

R. Botanic, 3½.

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.

Delivered on 4th April, 1868.

Par.
Numb.

73. Bill—Boundary.

151. Trade Accounts (Foreign Countries).

167. Navy (Distribution of Forces)—Return.

Manufactures, Commerce, &c.—Reports by Secretaries of Embassy, &c. (No. 1, 1868).

Public Petitions—Thirteenth Report.

Delivered on 6th April, 1868.

183. Government Insurances and Annuities—Accounts.

Delivered on 7th April, 1868.

Ecclesiastical Commission—Appendix to Twentieth Report.

Delivered on 8th April, 1868.

126. (n.) Committee of Selection—Third Report.

190. Queen's College (Galway)—Returns.

Delivered on 9th April, 1868.

83. Bill—Peage (Ireland).

85. " Metropolis Gas (amended in Committee).

87. " Legitimacy Declaration (Ireland).

181. Storm Warnings—Correspondence.

SESSION 1867.

534. Stamp Distributors—Returns.

Delivered on 11th April, 1868.

84. Bill—County General Assessment (Scotland).

Schools Inquiry Commission—Vol. VII. General Reports.

Delivered on 16th April, 1868.

140. Army (Staff Appointments)—Return.

174. Abyssinian Expedition—Return.

175. Savings Banks—Return.

194. Whitworth Scholarships—Minute.

199. Ecclesiastical Appeals—Return.

Delivered on 17th April, 1868.

163. Treasury Chest—Account.

172. Metropolitan Board of Works, &c.—Return.

154. Paris Exhibition—Return.

177. Greenwich Hospital—Account.

192. Rangoon and Western China—Replies to Memorials.

200. East India (Uncovenanted Service)—Return.

202. Electric Telegraphs—Return.

204. Quarantine (Island of St. Vincent)—Extracts of Communications.

SESSION 1867.

560. Navy (ships sold)—Return.

Delivered on 18th April, 1868.

84. Revenue Departments—Corrected Pages.

86. Army—Corrected Pages.

133. East India (Bombay Banks)—Return.

155. Coventry Election—Minutes of Evidence.
 155. Post-office Savings Banks—Return.
 156. Post-office Savings Banks—Account.
 159. Durham Records—Letter.
 197. Army (India and the Colonies)—Report.
 203. (i.) Railways Abandonment—Warrant.
 203. (ii.) Railways Abandonment—Warrant.

Delivered on 21st April, 1868.

193. Scientific Instruction—Minute.
 195. Grand Juries (Ireland)—Return.
 Colonial Possessions—Reports (Part II.).

SESSION 1867.

546. Tax Collectors (Great Britain)—Return.
Delivered on 22nd April, 1868.

168. Education—Return.
 171. Court of Probate (Ireland)—Account.
 196. Small Fox (Ireland)—Circulars.
 Public General Acts—Cap. 8 to 15.

Delivered on 23rd April, 1868.

151. (i.) Trade Accounts (Foreign Countries), (Belgium, Holland, and France)—Accounts (31st January, 1868).
 176. Increase and Diminution (Public Offices)—Abstract of Accounts.
 179. East India (Oudh)—Despatch.
 205. Poor Law (Walsall Workhouse)—Special Report.
 212. Sir Robert Peel's School (Tamworth)—Letter.

Delivered on 24th April, 1868.

208. Immigrants and Liberated Africans—Return.
 Education—Translations of Reports of the Imperial Commission on Technical Instruction in Europe.

SESSION 1867.

431. (A x.) Poor Rates and Pauperism—Return (A) (February, 1867 and 1868).
Delivered on 25th April, 1868.

88. Bill—Artisans and Labourers' Dwellings (amended in Committee).
 90. " Brought Ferry Provisional Order Confirmation.
 93. " Petroleum Act Amendment.
 177. Superannuations (Public Offices)—Account.
 218. Naval Reserve—Return.
 Diplomatic Service—Circulars.
 Schools Inquiry—Reports, Vol. VIII.
 Public Petitions—Fourteenth Report.

Delivered on 27th April, 1868.

126. (ii.) Committee of Selection—Fourth Report.
 130. (i.) Railway and Canal Bills—Second Report.

Patents.

From Commissioners of Patents' Journal, April 24.

GRANTS OF PROVISIONAL PROTECTION.

Anchors—1162—A. V. Newton.
 Beverages, alcoholic, with tea, coffee, &c.—1048—A. Scott.
 Beverages, carbonated—1214—M. A. F. Mennons.
 Beverages, machine for adding sweetening and other ingredients to aerated, &c.—656—R. A. Hope.
 Boat-detaching apparatus—1169—E. H. Newby.
 Bonnet shapes—1129—A. Martin.
 Braiding machines—1115—A. Jackson and J. Hartley.
 Buildings, fireproof—1204—J. Marsden.
 Cartridges—1180—J. J. Chandun and J. J. Dextant.
 Ceramic tesserae—1230—E. P. H. Vaughan.
 Corsets—1224—E. Richardson.
 Cotton, &c., spinning and doubling—1160—T. Holt and H. Spencer.
 Dies and taps, cutting—1198—G. T. Bousfield.
 Engines, steam—1123—J. S. Croslan.
 Engines, &c., pumping—1153—R. Moreland, jun., and D. Thomson.
 Fabrics, textile, &c., finishing—1174—R. G. Lowndes.
 Feathers, &c., bleaching, &c.—1218—B. J. B. Mills.
 Fire-arms and cartridges—1200—W. E. Newton.
 Flax, &c., preparing—1188—E. Brasier and J. E. Hodgkin.
 Floor cloths, &c.—1177—D. Lane.
 Fringes, purl edgings, &c.—1186—C. G. Hill.
 Furnaces, blast—1137—H. Cochrane.
 Furnaces, gas—1172—C. W. Siemens.
 Garden engines—1196—W. B. Robins.
 Gas—504—J. A. Hogg.
 Gas—1195—A. H. Still and D. Lane.
 Grain, washing and drying—1179—J. Bedford.
 Harrows—1175—J. Armstrong.
 India-rubber, gutta-percha, &c.—1222—T. Forster.
 Iron and steel—1157—J. Radcliffe.
 Iron, manufacturing into semi-steel or steel—1181—J. James and T. Jones.
 Iron, rolling sheets of—1171—F. Simpson and S. Hardwick.
 Lamps—1173—J. Sherwood.
 Lead, producing white pigments from—1117—J. G. Dale & E. Milner.
 Leather, &c., apparatus for skinning—1191—W. Chapman.
 Liquids, measuring—1151—E. Hay.
 Looms—1150—D. Crichton, W. Bonhavand, and D. Crichton.
 Matches, holding and igniting—1168—W. Nall.
 Motive-power, obtaining—1156—J. M. Plessner.

Mowing and reaping apparatus—1228—E. Foden.
 Ordnance—1189—T. Hunt.
 Organs, &c.—1149—H. and J. Bryceson and T. H. Morten.
 Paper-hangings—1135—T. Row and S. Scott.
 Photography—1206—C. E. Broome.
 Potatoes, digging—1125—J. Wallace.
 Printing machines, lithographic, &c.—1154—C. H. Gardner and J. Bickerton.

Railway switches, points, and signals—1112—J. Saxby.

Railway wheels, &c.—1194—J. Rae and G. Miller.

Railways, preventing accidents at facing points on—1165—R. Holiday.

Rocks, &c., cutting and working—1183—W. R. Lake.

Satin, &c., pipings and folds of—1232—H. Hughes.

Sewing machines—1127—J. Harwood.

Ships, propelling—1147—D. C. MacIvor.

Ships, propelling and steering—1059—W. W. Hughes.

Ships, steering—1119—J. Napier.

Shoes, bathing—1161—A. V. Newton.

Shutters, coiling or revolving—904—H. H. Hazard.

Smoke, consuming—1166—H. J. Ditmars.

Soda, salts of—1184—W. E. Newton.

Steel—1187—V. Gallet.

Taps, screw, and fixing same—1164—E. Watteeu.

Targets, arrows, &c.—1143—F. H. Greenstreet.

Tea-pots, &c., handles of—1170—H. Fisher.

Tin plates, &c.—1133—W. Williams.

Tubes, metallic—1131—J. V. Jones and G. J. Williams.

Turbine apparatus for obtaining power from a fall of water—998—F. W. Crohn.

Wheels, cutting the teeth of—1190—C. Douglas.

Wood, machinery for planing—1163—J. Casson.

Yarns, folding—1141—A. and H. Illingworth.

Yarns, &c., warping—1121—J. and T. Walmsley.

PATENTS SEALED.

3000. W. and D. Fisken.	3034. A. J., W. B., and S. H.
3010. P. Love.	Waterlow.
3011. B. Cooper.	3030. H. A. Bonneville.
3014. G. and E. Dorsett and J. B.	3036. M. Henry.
Blythe.	3037. T. Bennett.
3015. W. E. Wiley.	3055. J. B. Fenby.
3020. J. J. Perry.	3057. F. Piercy.
3023. W. Kendall.	3061. C. and J. Jobson.
3027. W. Payne & A. B. Fraser.	3070. I. Kendrick.
3028. J. de Silva.	3086. W. E. Gedge.
3029. G. Smith.	3117. C. E. Broome.
	3118. W. R. Lake.

From Commissioners of Patents' Journal, April 23.

PATENTS SEALED.

3045. E. T. Hughes.	3119. A. M. Clark.
3049. W. P. Savage.	3124. A. McDougal.
3050. L. Perkins.	3127. E. C. Prentice.
3052. W. H. A. Bowhay.	3131. R. Newton.
3056. T. E. Symonds.	3137. A. M. Clark.
3060. A. V. Newton.	3140. T. J. Baker.
3062. R. Clegg.	3208. A. F. Gaidan.
3065. E. Donner.	3258. W. R. Lake.
3075. R. B. Roden.	3368. W. Palmer.
3076. J. Sturgeon.	3663. E. H. Bentall.
3080. S. Parr and A. Strong.	3647. C. J. Adams.
3081. J. Wright and M. B. Nairn.	224. C. R. Broadbent.
3085. A. G. Avenell.	726. J. Dewar.
3089. J. J. Hicks.	808. C. D. Abel.
3101. H. Hebdon.	865. C. R. Broadbent.
3112. T. Wingate, jun.	

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

1113. E. Wilson.	1143. J. J. Parkes.
1122. R. Canham.	1178. H. W. Wood.
1150. T. Waker.	1213. J. C. Davis.
1127. J. H. Wilson.	1239. W. Clark.
1155. J. Wilkinson, jun.	1251. J. Lilley.
1277. P. Welch.	

PATENTS ON WHICH THE STAMP DUTY OF £100 HAS BEEN PAID.

1085. F. J. Bramwell and W.	1041. J. S. Templeton.
Owen.	1106. P. Wright.

Registered Designs.

4939—March 21—Tap—J. Conbey, Walsall.
 4940—March 21—Cigarette or cigar case, with tinder, tube, and match box—H. W. and L. Dee, 8, Sherwood-street.
 4941—March 25—Coffee-pot, to be called "The Kaffeekanne"—H. C. Ash, 315, Oxford-street.
 4942—April 1—Embellished collar stud—W. F. Brown, 5, Wedgates-street, Gloucester.
 4943—April 6—Hat brim wire—E. Gaunt and T. Eddison, Leeds.
 4944—April 6—An improved mallet—Atkin and Son, Bea-street, Birmingham.